

# Best Practices for Road Weather Management

## Version 2.0

### Nebraska Road Weather Information for Travelers

The Nebraska Department of Transportation (DOT) and the Nebraska State Patrol have partnered with a private company to provide the public with road weather information. In October 2001, Nebraska became the first state to provide statewide traveler information via 511. Information provided via 511—the national traveler information telephone number designated by the Federal Communication Commission—is also posted on agency web sites.

**System Components:** The private company—Meridian Environmental Technology—operates a system that ingests data from various sources including the DOT's roadside Environmental Sensor Stations, the Agricultural Weather Network managed by the University of Nebraska, National Weather Service (NWS) Doppler Radar, NWS satellite data, Federal Aviation Administration surface weather observations, as well as field reports from DOT and State Patrol personnel. The data are transmitted, via various communications systems, to computers at Meridian's North Dakota office that perform advanced weather forecast processing. These computers generate data for 6.2-mile (ten-kilometer) grids across the state and disseminate tailored road weather information via an interactive telephone system and the Internet. The DOT has installed road signs, depicted in the figure, along state highways to advise motorists of the 511 service.



**System Operations:** When travelers dial 511, from cellular or landline telephones, the system asks for the caller's route of interest (i.e., highway and direction). The information system integrates weather analysis and forecast data with road attribute data to provide the caller with a customized, route-specific pavement condition report and six-hour weather forecast extending roughly 60 miles (or one hour) in their direction of travel.

Traveler information provided via 511 is also available on the Internet ([www.safetravelusa.com](http://www.safetravelusa.com), soon to be [www.511bystate.com](http://www.511bystate.com)). Users can view a state map and detailed regional maps with color-coded highways. When a colored freeway segment is selected, a textual road condition and weather report is displayed. This information can also be accessed via links on the State Patrol and DOT web sites ([www.nebraskatransportation.org](http://www.nebraskatransportation.org)). Travelers can also access road weather data for neighboring states including Minnesota, Montana, North Dakota, and South Dakota.

Location:
For travelers on Nebraska U.S. Highway 20 between Valentine and Newport.
Road Information:
Roadway is reported as having 75 to 100% coverage of snow or slush between milepost 197 and 202. Roadway is reported as having 25 to 50% coverage of snow or slush between milepost 203 and 221. Roadway is reported as having 75 to 100% coverage of snow or slush between milepost 222 and 270.
Weather Forecast:
The forecast until 4 o'clock Central Time this Wednesday afternoon. Skies will be mostly cloudy becoming partly cloudy. Visibility will be 5 miles changing to 10 miles. There will be occasional very light snow ending. Winds will be 8 miles per hour from the north changing to 7 miles per hour from the north-northeast. Temperatures will range from 2 to 4 degrees increasing to 6 to 8 degrees.

**Nebraska Textual  
Road Weather Report**

# Best Practices for Road Weather Management

## Version 2.0

---

*Transportation Outcome:* This advisory strategy allows the public to make more informed travel decisions (e.g., departure time, route selection) than can be made with less specific road weather information. Decision support provided by the road weather information system can enhance roadway safety. On July 6-7, 2002 usage of the system peaked due to a flash flood that washed out bridge approaches on Interstate 80.

The system improved productivity by replacing labor-intensive condition reporting procedures. In the past, State Patrol officers in the field visually observed and reported road weather conditions, which were compiled for voice recording at least five times per day. Condition reports were then made available to the public via a toll-free telephone number. During severe weather events, the 511 service relieves officers of reporting duties and allows them to focus on public safety and law enforcement activities.

*Implementation Issues:* Nebraska's Department of Administrative Services is monitoring implementation of the 511 service. The state has negotiated cooperative agreements with local telephone companies and cellular service providers in order to provide the service free of charge to the public. The state's Public Service Commission advertised the 511 service with announcements placed in local telephone directories.

#### *Contact(s):*

- Jaimie Huber, Nebraska Department of Roads, 511 Operations Manager, 402-471-1810, [jhuber@dor.state.ne.us](mailto:jhuber@dor.state.ne.us).
- Bryan Tuma, Nebraska State Patrol, Major, Administrative Services, 402-479-4950, [btuma@nsp.state.ne.us](mailto:btuma@nsp.state.ne.us).
- Leon Osborne, Meridian Environmental Technology, Chief Executive Officer, 701-787-6044, [leono@meridian-enviro.com](mailto:leono@meridian-enviro.com).

#### *Reference(s):*

- FHWA, "511 America's Traveler Information Telephone Number," December 2002, [www.fhwa.dot.gov/trafficinfo/511.htm](http://www.fhwa.dot.gov/trafficinfo/511.htm).
- FHWA, "New 511 Traveler Information System Operational October 1," <http://www.fhwa.dot.gov/nediv/511pr.htm>.
- Nebraska Department of Roads, "New Info on 511 More Precise," News Release, January 15, 2003, <http://www.dor.state.ne.us/news/news%20releases/jan-2003/new511-1-15.pdf>.
- Meridian Environmental Technology, "Safe Travel USA Web Site", State of Nebraska, 2002, <http://www.safetravelusa.com/process.pl?state=ne>.
- Osborne Jr., L. and Owens, M., "Evaluation of the Operation and Demonstration Test of Short-Range Weather Forecasting Decision Support within an Advanced Rural Traveler Information System," University of North Dakota, 2000, [http://www.itsdocs.FHWA.dot.gov/jpodocs\\_te/@9301!.pdf](http://www.itsdocs.FHWA.dot.gov/jpodocs_te/@9301!.pdf).

*Keyword(s):* adverse weather, road weather information system (RWIS), freeway management, law enforcement, advisory strategy, traveler information, pavement condition, weather information, decision support, environmental sensor station (ESS), internet/web site, institutional issues, safety